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Research Article

The mediating role of attention control dimension of self-regulation in the relationship between academic self-efficacy and academic goal orientation

İbrahim Tuncel[1] and Zeynep Ayvaz-Tuncel[2]

[1]*Pamukkale University, Faculty of Education, Türkiye (ORCID: 0000-0002-6533-6352)*
[2]*Pamukkale University, Faculty of Education, Türkiye (ORCID: 0000-0003-1817-9603)*

The purpose of this study is to determine the mediating role of the attentional control dimension of self-regulation in the relationship between academic self-efficacy and academic goal orientation. The study, which was conducted by collecting data from a total of 405 university students, aimed to estimate the links between the research variables using structural equation modelling. Academic self-efficacy, control dimension of self-regulation scale, and academic goal orientation scale were used to collect data. The study's findings show a positive and significant relationship between academic self-efficacy and learning goal orientation, and the attentional control of self-regulation plays a significant partial mediating role in this relationship. In addition, the relationship between academic self-efficacy and performance-avoidance goal orientation was found to be negative and significant, and self-regulation's attentional control played a partial mediating role in this relationship. Based on the research findings, it was determined that academic self-efficacy and attentional control of self-regulation variables positively affect learning goal orientation. In contrast, they negatively affect performance-avoidance goal orientation. In addition, it was concluded that attentional control of self-regulation has a stronger mediating role in the relationship between academic self-efficacy and learning goal orientation than the relationship between academic self-efficacy and performance-avoidance goal orientation.

Keywords: Academic goal orientation; Academic self-efficacy; Attentional control of self-regulation; Learning goal orientation; Performance avoidance goal orientation

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1. Introduction

Understanding and explaining the individual's learning process has been a subject of study for many years. Learning is a complex concept influenced by many internal and external variables. Knowledge about students' learning processes can provide crucial data to explain how they are motivated and increase their academic achievement. At the same time, understanding and explaining this concept is of great importance for the development of individuals and, thus, society.

Goal orientation is an essential factor affecting how individuals behave in the learning process, motivation, and achievement. Goal orientation theory has been recognized as a valuable

Address of Corresponding Author

İbrahim Tuncel, PhD, Pamukkale University Faculty of Education, Educational Sciences, Kınıklı Campus, 20160, Denizli, Türkiye.

✉ ituncel@pau.edu.tr

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framework for understanding individuals' motivation and approach to academic tasks (Kaplan & Maehr, 2006; Vandewalle et al., 2001). According to Gong (2024), goal orientation is crucial for understanding individuals' approach to tasks, motivation, and pursuit of specific goals. At the same time, according to Dweck and Leggett (1988), goal orientation refers to students' reasons or purposes for engaging in learning tasks. The chosen orientation also shapes students' strategies in their learning process and overall academic experience.

In the historical process, different classifications have been made about goal orientation. Dweck (1986) defined two basic goal orientations as learning goals, in which individuals try to increase their competencies and understand and master new things, and performance goals, in which individuals try to obtain positive judgments about their competencies or avoid negative judgments. However, as a result of the studies conducted by Elliot and Church (1997) and VandeWalle (1997), three different dimensions emerged to explain the concept. VandeWalle (1997) found that the dimension Dweck defined as performance goal orientation is divided into two subgroups. These are items aimed at proving ability and not showing a lack of ability. Accordingly, he categorized goal orientation as learning, performance proving, and performance-avoidance. Elliot and Church (1997) divided the performance goal dimension into positive outcome-seeking and negative outcome-avoidance categories. Thus, they presented a three-dimensional achievement goal, which included the mastery achievement goal, performance-approach achievement goal, and performance-avoidance achievement goal. This study is based on the three-dimensional model developed by VandeWalle. As suggested by VandeWalle et al. (2019), when referring to VandeWalle's (1997) three-factor model, the terms learning goal orientation, performance-proving goal orientation, and performance-avoidance goal orientation are used.

Learning Goal Orientation focuses on students' personal development and knowledge acquisition process (Dweck, 2006). People with this orientation are highly motivated to learn and understand new information, tend to benefit from feedback, and show more effort when faced with difficulties (Ames & Archer, 1988). Individuals with a learning goal orientation constantly try to learn new skills, cope with new situations, and learn from experiences (Zhang, 2021). Learning goal orientation is associated with intrinsic motivation (Mustapa, 2018). Performance-prove goal orientation is a special type of goal orientation that focuses on demonstrating one's competence and proving that one's performance is superior to others. Individuals with high performance-prove goal orientation strongly desire to prove their abilities and receive positive judgments from others based on their performance (Dietz et al., 2015). This orientation is characterized by a focus on outperforming others, performing excellently, and earning positive evaluations (Wang & Takeuchi, 2007). It involves the motivation to make an effort, persevere, and acquire new knowledge to achieve superior performance (Porath & Bateman, 2006). Performance-evidencing goal orientation is related to extrinsically oriented motivation because individuals with this orientation focus on external evaluations and are motivated by competence relative to others (Porath & Bateman, 2006). Performance-proving goal orientation is related to extrinsically oriented motivation because individuals with this orientation focus on external evaluations and try to demonstrate their competence relative to others (Acarlar & Bilgiç, 2010).

Performance-avoidance goal orientation is a specific type characterized by focusing on avoiding negative judgments about one's abilities and demonstrating competence to avoid appearing incompetent. Individuals with high performance-avoidance goal orientation are motivated to avoid situations where they may be perceived as lacking ability or receive negative evaluations (Silver et al., 2006). This orientation involves a strong desire to avoid showing incompetence and to avoid others' negative judgments of one's performance (VandeWalle et al., 2001). It is associated with the motivation to avoid appearing unintelligent or incompetent in tasks or learning situations (Ruishi et al., 2021). Gafoor and Kurukkan (2015) conducted a study to determine the academic goal orientations of high school students. They found that students with high learning goal orientation maintained their motivation, while students with high avoidance goal orientation had minimal motivation to learn. Gegenfurtner et al. (2016) emphasized that performance-avoidance

goals focus on avoiding others' perception of inadequacy. Janssen and Prins (2007) found that individuals with performance-avoidance goal orientation tend to prioritize self-development information over self-presentation concerns. Lee and Suh (2022) highlighted that performance-avoidance goal orientation is a significant predictor of extrinsic motivation and demonstrated its impact on individuals' motives and commitment to various tasks.

The research has shown that individuals with a performance-avoidance goal orientation tend to avoid tasks that may lead to negative perceptions of others and avoid challenging or uncertain situations where there is a possibility of failure (Ross et al., 2002). This orientation is linked to the desire to avoid negative evaluations and to avoid situations where one's lack of ability may be revealed (Choi et al., 2022). Performance-avoidance goal orientation is also associated with a focus on avoiding negative judgments and demonstrating competence to prevent negative outcomes (Kivlighan, 2024).

Students with learning goal orientation actively participate in learning, strive to improve their abilities, and positively improve their academic achievement (Beik & Cho, 2023). While learning goal orientation is linked to personal development and learning, performance goal orientation focuses more on achievement and external recognition (Juhaňák, 2024). Learning goal orientation is associated with a focus on learning to master the material and develop skills, while performance goal orientation involves striving to outperform others or demonstrate competence (Elhassan et al., 2021; Schraw et al., 1995). While learning goal orientation has been found to have a positive effect on learning, the effect of performance goal orientation has yielded inconsistent results (Xie et al., 2022). However, VandeWalle and Cummings (1997) showed that individuals with learning goal orientation used learning strategies more than individuals with performance goal orientation.

The literature has many variables associated with academic goal orientation. For example, the impact of social and environmental factors on academic goal orientation is important. Classroom climate, peer influence, and competition are contextual factors that influence students' goal orientation and academic behaviour (Gunawan & Pramadi, 2018). In addition, academic ambition has emerged as another variable that intersects with goal orientation and influences students' academic pursuits (Ibrahim et al., 2012). One of the factors affecting academic goal orientation is academic efficacy, which is related to students' perceptions of competence and effectiveness in academic tasks (Hsieh et al., 2007; Soler et al., 2022). Perceived ability and self-efficacy were among the first moderating variables identified in early goal orientation research (VandeWalle et al., 2019).

1.1. The Relationship between Academic Goal Orientation and Academic Self-Efficacy

Based on Bandura's social cognitive theory, academic self-efficacy refers to a student's belief in his or her ability to successfully perform certain academic tasks. This belief significantly influences the effort students exert, their persistence in the face of difficulties, and ultimately, their academic achievement (Bandura, 1997; Zhang, 2021; Zhong, 2023). Academic goal orientation examines students' motivation to achieve academic success and the goals underlying this motivation. In the academic context, high self-efficacy leads students to set more challenging academic goals and exert more effort to achieve these goals. Therefore, students' academic goal orientation is shaped by their self-efficacy levels. According to Pajares (1996), students with high self-efficacy tend to adopt learning goals because they have confidence in their ability to learn and understand the material. On the other hand, students with low self-efficacy may be oriented toward performance goals and tend to avoid failure and negative evaluations. Research by Scott et al. (2008) revealed that academic self-efficacy is positively related to intrinsically motivating goal representations. Students with high academic self-efficacy tend to have personally meaningful, important, and self-motivated goals rather than goals imposed by external factors. This suggests that students with strong beliefs about their academic abilities are likelier to set challenging and meaningful goals aligned with a learning-oriented goal orientation that focuses on learning and development.

While self-efficacy influences individuals' goal orientation, this relationship is reciprocal. Learning-oriented students increase their self-efficacy by achieving success through effective learning strategies and sustained effort. On the other hand, performance-oriented students may experience variable levels of self-efficacy due to external evaluations and comparisons (Schunk, 1991). Thus, students with learning-oriented goals generally have higher academic achievement and stronger academic self-efficacy (Elliot & McGregor, 2001). Winter et al. (2021) defined academic self-efficacy as one of the psychological factors associated with academic performance. This underlines the importance of students' beliefs about their academic abilities in influencing their goal orientation and subsequent academic achievement. Academic self-efficacy is a fundamental element that shapes students' goal-setting behaviors and overall approach to learning and achievement.

1.2. The Relationship between Academic Goal Orientation and Self-regulation

Self-regulation skills refer to students' ability to plan, monitor, and evaluate their learning processes. These skills generally consist of three main components: planning (goal setting and strategizing), monitoring (tracking the learning process), and evaluation (analyzing the results of the learning process) (Zimmerman, 2000). Planning, that is, setting specific, challenging, and achievable academic goals, is the first step in self-regulation. Effective goal setting provides direction, motivates effort, and makes it possible to monitor progress (Locke & Latham, 2002). Monitoring involves tracking progress towards goals and is a critical aspect of self-regulation. This involves regularly assessing performance, identifying gaps in understanding, and adjusting strategies as needed (Pintrich, 2004). Evaluating helps students reflect on the results and the processes used to achieve them and helps them make necessary adjustments. This dimension involves analyzing successes and failures, understanding their causes, and modifying strategies to improve future performance (Zimmerman, 2002).

Learners with developed self-regulation skills exhibit higher academic performance due to their ability to manage their learning processes effectively. They set realistic goals, monitor their progress, and make necessary adjustments to stay on track (Himawan, 2023; Pintrich, 2000). Self-regulation increases motivation and engagement by giving a sense of control over learning. Students who feel they can manage their learning are more likely to be intrinsically motivated and actively engaged in academic tasks (Deci & Ryan, 2000). Self-regulated learners are better at coping with setbacks and difficulties. Their ability to reflect and learn from their experiences helps them recover from failures and persist in facing challenges (Boekaerts, 1996). Individuals need to keep their attention on the task and maintain a positive emotional balance to cope with the challenges they face in realizing their goals. Paying attention to current goal priorities and resisting distractions are often difficult to self-regulate (Luszczynska et al., 2004). Furthermore, Özyer and Altınsoy (2023) state that self-regulated learning is an active process that involves students being aware of the strengths and limitations of their learning process and making necessary adjustments.

Self-regulation involves various components, and attentional control is an important aspect of self-regulation (Diehl et al., 2006). Attention is often directed to goal-related information and influences goal pursuit (Vogt et al., 2011). Automatic attitudes toward goals significantly influence goal-pursuit behaviors, intentions, and judgments (Ferguson, 2007). Different future goals, whether intrinsic or extrinsic, can influence students' self-control and distal learning outcomes (Zhoc et al., 2019). Attentional control involves an individual's ability to focus on a specific task and avoid distractions. This means that an individual can selectively focus on stimuli from environmental and self-related sources (Luszczynska et al., 2004).

The attentional control dimension of self-regulation involves students' strategies and processes to manage their learning activities. This includes elements such as goal setting, monitoring progress, and adjusting behaviors to achieve academic goals. Effective self-regulation enables students to control and motivate their learning (Zimmerman, 2000). Individuals with high

attentional control show more determination to work on their goals and are more willing to spend the necessary time and effort to achieve them (Diehl et al., 2006).

One of the critical variables associated with self-regulation is academic goal orientation. Research has shown that students' academic self-regulation is closely linked to goal orientation (Sawalhah & Zoubi, 2020). Students who exhibit strong self-regulation skills are likelier to set specific goals, persevere in facing challenges, and adapt learning strategies to achieve their academic goals. Academic self-regulation is a driving force behind goal-directed behavior and is essential for students to effectively pursue their academic goals (Wolters, 1998). Students with learning goal orientation are more likely to use effective self-regulation strategies. Students with learning goal orientation tend to focus on skill development and material mastery, which leads to the adoption of effective self-regulated learning strategies (Soyer & Kirikkanat, 2019). In contrast, students with a performance approach goal orientation may prioritize demonstrating their abilities over others, influencing their self-regulation strategies and academic performance (Nne et al., 2022).

1.3. The Relationship between Academic Goal Orientation, Self-Efficacy and Self-Regulation

Academic goal orientations and self-regulation skills significantly impact students' academic self-efficacy. Students with learning-oriented goals may generally have better self-regulation skills, which can increase their academic self-efficacy. Self-regulation skills enable students to manage better their learning processes, which supports them in achieving their academic goals (Schunk & Zimmerman, 1994). Self-regulation skills strengthen students' academic self-efficacy and contribute to their success (Schunk, 2003).

Research following students has shown that high academic self-efficacy is associated with adopting learning goals and using effective self-regulation strategies. These factors result in increased academic performance over time and greater persistence in facing challenges (Pajares, 1997). It has been shown that students with high self-efficacy and learning goal orientation are more likely to self-regulate and exhibit higher academic performance. Performance goal orientation, especially performance-avoidance, is often associated with low self-regulation and poor academic performance (Kaplan & Maehr, 2006). High self-efficacy increases self-regulation and promotes the adoption of learning goals, resulting in increased motivation, engagement, and academic achievement. In contrast, low self-efficacy and performance-avoidance goals are associated with poorer self-regulation and lower academic performance (Schunk & Pajares, 2005). In a meta-analysis study by Richardson et al. (2012) examining the psychological factors affecting the academic performance of university students, it was found that there were strong positive relationships between self-efficacy, learning goal orientation, and self-regulation.

1.4. Gaps in the Literature

There are many studies investigating the relationship between academic self-efficacy, self-regulation, and academic goal orientation, which are the variables of this study, and academic achievement separately or with different variables. However, studies in the literature examine the mediating role of self-regulation with different variables. In the literature, the mediating role of self-regulation with academic achievement (Cahyawati et al., 2023; Kim, 2022; Mega et al., 2014), academic self-efficacy (Sari et al., 2020), academic procrastination (Sun, 2024), emotional intelligence (Kim, 2022) and problem-solving (Hwang & Oh, 2021) has been addressed. However, there are no studies on the mediating role of the attention control dimension of self-regulation in the relationship between academic self-efficacy and academic goal orientation. Although the strong relationship between self-efficacy and self-regulation and the relationship between self-efficacy and goal orientation has been determined by the results of many studies, the fact that the mediating role of the attention control dimension of self-regulation in the relationship between academic self-efficacy and academic goal orientation has not been investigated is seen as an important gap in the literature. In this context, this study, conducted to complete this gap in the literature, is considered original.

1.5. Purpose of the Study

Determining the factors affecting students' academic goal orientation can help to predict whether they will achieve their educational goals and take precautions. The results of this study are also expected to provide information about the actions to be taken for the positive development of academic goal orientation. This study aimed to examine the relationships between university students' perceptions of academic self-efficacy, attentional control of self-regulation, and academic goal orientation and determine the mediating role of attentional control of self-regulation in the relationship between academic self-efficacy and the dimensions of academic goal orientation. For this purpose, the following research hypotheses and the '*Structural Model-1*' (Figure 2) and '*Structural Model-2*' (Figure 4) based on these hypotheses were tested.

H1: Academic self-efficacy positively predicts learning goal orientation.

H2: Academic self-efficacy positively predicts the attentional control dimension of self-regulation.

H3: The attentional control dimension of self-regulation positively predicts learning goal orientation.

H4: The attentional control dimension of self-regulation positively mediates the relationship between academic self-efficacy and learning goal orientation.

H5: Academic self-efficacy negatively predicts performance-avoidance goal orientation.

H6: The attentional control dimension of self-regulation negatively predicts performance-avoidance goal orientation.

H7: The attentional control dimension of self-regulation negatively mediates the relationship between academic self-efficacy and performance-avoidance goal orientation.

2. Method

2.1. Research Design

This study is based on a quantitative research method and correlational survey design. This design tries to estimate the direction and degree of simultaneous variance in multiple variables in an established model (Büyüköztürk et al., 2020). Path analysis technique, one of the structural equation models, was used to evaluate and validate the basic and mediating models created based on the study's hypotheses. Path analysis enables the determination of causal relationships and direct and indirect effects between variables (Byrne, 2016).

2.2. Population and Sample

The research study population consists of 5206 undergraduate students studying at the Faculty of Humanities and Social Sciences of a state university in Türkiye. The 405 students reached through the convenience sampling method were able to represent the study population. Data were collected according to the ethical principles of the Declaration of Helsinki. Firstly, the participants were informed about the purpose, method, and protection of personal data, and students participated in the study voluntarily. Demographic information about the sample is presented in Table 1.

2.3. Data Collection Tools

2.3.1. Personal information form

The form aims to identify the participants according to their gender, department, grade, and perception of academic achievement.

Table 1
The Demographics of the Recruited Study Participants (N=405)

Variable	*N*	*%*
Gender		
Female	229	76.8
Male	176	23.2
Grade		
Second Grade	165	40.7
Third Grade	132	32.6
Fourth Grade	108	26.7
Department		
Turkish Language Literature	165	40.8
English Language and Literature	111	27.4
Sociology - Philosophy	56	13.4
History-Geography	75	18.4
Achievement Perception of the Student		
Low	51	12.6
Middle	288	71.1
High	66	16.3

2.3.2. Academic self-efficacy scale

In order to measure the academic self-efficacy of university students, the "Academic Self-Efficacy Scale" developed by Jerusalem and Schwarzer (1981) and adapted to Turkish culture by Yılmaz et al. (2007) was used. As a result of the factor analysis, a 4-point Likert-type scale consisting of a total of 7 items with a single dimension as in the original scale emerged. Cronbach's alpha reliability value of the scale was determined as .79. For this research, Cronbach's alpha was found to be 0.756, indicative of good reliability, and the model fit was verified by CFA: χ^2/df = 2.01, RMSEA=0.050, GFI=0.982, CFI=0.978, AGFI=0.960, NFI=0.957, SRMR=0.033, demonstrating good structural validity. The factor loadings were between 0.310 and 0.746.

2.3.3. Control dimension of self-regulation scale

The 'Control Dimension of Self-regulation Scale' developed by Schwarzer et al. (1999) and adapted to Turkish culture by Çevik et al. (2017) was used to measure the attention regulation dimension of self-regulation. The difference between this scale and other scales developed in the field of self-regulation is that it includes the measurement of the regulation of attention and emotions, which play an important role in the self-regulation process. As a result of the factor analysis, it was seen that the scale was unidimensional and consisted of a total of 7 items. Cronbach's Alpha internal consistency coefficient of the scale was found to be .84. For this research, Cronbach's alpha was found to be 0.772, indicative of good reliability. The model fit was verified by CFA: χ^2/df =2.91, RMSEA=0.069, GFI=0.974, CFI=0.957, AGFI=0.944, NFI=0.937, SRMR=0.038, demonstrating good structural validity. The factor loadings were between 0.461 and 0.721.

2.3.4. Academic goal orientation instrument

The academic goal orientation scale developed by Van de Walle (1997) was adapted to Turkish culture by Fındıkoğlu and Gürol (2021). As a result of the exploratory factor analysis, a three-factor structure consisting of thirteen items explaining 66.5% of the variance was determined. Factor 1 was .84 for Learning, Factor 2 was .86 for Proving, Factor 3 was .86 for Avoidance, and .84 for the whole scale (13 items) (Cronbach's α = .84). In this research, the Cronbach's alpha value for the learning dimension was .798, .783 for the proving dimension, .720 for the avoidance dimension, and .609 for the whole scale. For this research, the model fit was verified by CFA: χ^2/df =1.83, RMSEA=0.045, GFI=0.959, CFI=0.963, AGFI=0.940, NFI=0.923, SRMR=0.050, demonstrating good structural validity. The factor loadings were between 0.444 and 0.847.

2.4. Data Analysis

Before analyzing the data set, missing data, univariate and multivariate normality, outliers, and multicollinearity values were examined. When the skewness and kurtosis coefficients of the scales used in the study were examined, it was found that the skewness values were between −0.049 and −0.326, and the kurtosis values were between -0.503 and -0.828. According to Tabachnick and Fidell (2013), these values are among the normal distribution values. The Mardia statistic, which the AMOS program can calculate, was used to test the suitability of the data for multiple normal distributions (Byrne, 2016). In this study, first, statistical analysis was conducted with SPSS 27.0 to explore the relationships between academic self-efficacy, attentional control of self-regulation, and academic goal orientation and to calculate the variables' means, standard deviations, and Pearson correlation coefficients. Then, a multigroup CFA was conducted with AMOS 22.0 to test the appropriateness of the measurement model. Finally, two models based on the study's hypotheses were tested with path analysis techniques from structural equation models using the AMOS 22.0 statistical program. While testing the mediation hypotheses, 5000 bootstrap sampling was preferred, and the path coefficients' bias-corrected 95% confidence intervals were calculated. 95% confidence intervals were interpreted according to whether they contained zero (0) (Preacher & Hayes, 2008).

3. Findings

3.1. Descriptive Statistics and Correlation Analysis

Pearson Product Moment Correlation analysis was conducted to examine the relationships between the variables in the study. In addition, descriptive statistics of the variables were also calculated. The results of the analysis are presented in Table 2.

Table 2
Descriptive Statistics and Relationships between Variables

Variables	*M*	*SD*	*Min*	*Max*	*ASE*	*CSR*	*PGO*	*AGO*	*LGO*
ASE	2.697	0.541	1.29	3.86	1				
CSR	2.839	0.622	1.43	4.00	.475**	1			
PGO	3.987	1.502	1.00	7.00	.021	.077	1		
AGO	4.266	1.168	1.60	7.00	−.434**	−.352**	.205**	1	
LGO	4.738	1.220	1.75	7.00	.426**	.453**	.001	−.346**	1

Note. **$p < .01$ ASE: Academic self-efficacy; CSR: Control dimension of self-regulation; PGO: Proving goal orientation; AGO: Avoiding goal orientation; LGO: Learning goal orientation

According to the arithmetic means of the scales, the participants' perceptions of academic self-efficacy (M = 2.697, SD = 0.541) and self-regulation (M = 2.839, SD = 0.622) and learning goal orientation (M = 4.738, SD = 1. 220) were at the level of agreement in the form of 'it fits me / I agree', whereas their perceptions of proving goal orientation (M = 3.987, SD = 1.502) and avoidance goal orientation (M = 4.266, SD = 1.168) were at the level of 'undecided' agreement. However, when the arithmetic averages of the dimensions of the academic goal orientation scale are ranked from high to low, it is seen that the perception levels of learning goal orientation (M = 4.738, SD = 1.220), followed by avoidance goal orientation (M = 4.266, SD = 1.168), and then proving goal orientation (M = 3.987, SD = 1.502).

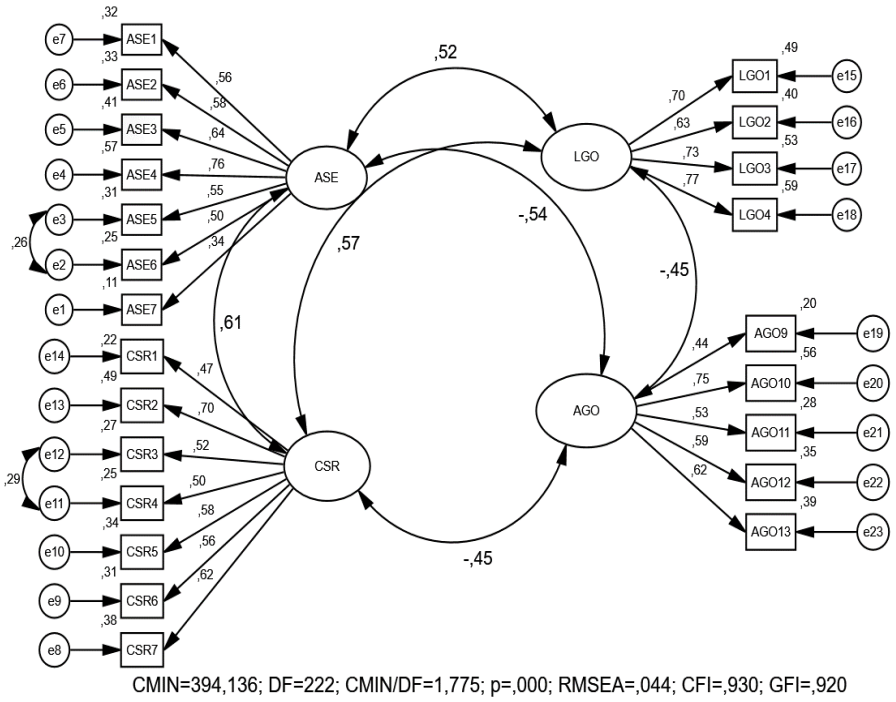
When the Pearson Correlation Coefficients presented in Table 2 are examined, the total score of the academic self-efficacy [ASE] scale and the total score of the attentional control of self-regulation [CSR] scale ($r = .475, p < .01$) and there is a moderate positive significant relationship between the 'learning goal orientation (LGO)' of the academic goal orientation scale and the scale score of academic self-efficacy (ASE) ($r = .426\ p < .01$) and attention control dimension of self-regulation ($r = .453,\ p < .01$). However, there was a moderate negative relationship between the performance-avoidance goal orientation dimension of the academic goal orientation scale and academic self-efficacy ($r = -.434,\ p < .01$) scale score. There is a moderate negative significant

relationship between performance-avoidance goal orientation [AGO] and the scale score of attention control dimension of self-regulation ($r = -.352$, $p < .01$). In addition, it was determined that there was no significant relationship between the performance-proving goal orientation [PGO] dimension of the academic goal orientation scale and the scale scores of the academic self-efficacy scale and the attentional control dimension of self-regulation. Therefore, the performance-proving dimension of the academic goal orientation scale was removed from the structural model. Based on these findings, it can be said that the attentional control dimension of self-regulation can possibly mediate between self-efficacy and learning goal orientation and performance-avoidance goal orientation.

3.2. Measurement Model and SEM Path Analysis Values

First, a multi-group confirmatory factor analysis was conducted to test the appropriateness of the measurement model (Figure 1). In order to obtain better-fit indices as a result of the analysis, two modifications were made between items 4 and 3 of the proposed self-regulation scale and then between items 6 and 5 of the academic self-efficacy scale. Only these two modifications were made in all analyses of the study. When the fit indices of the measurement model of the research presented in Table 3 were examined, it was found that the model had a good fit (χ^2/df = 1.77, $p < .001$, CFI = 0.93, GFI = 0.92, RMSEA = 0.04 and SRMR = 0.04).

Figure 1
Path Analysis Measurement Model



3.3. The Mediating Effect of Self-Regulation's Attentional Control in the Relationship between Academic Self-Efficacy and Learning Goal Orientation

For the purpose of the research, path analysis was conducted to test the structural equation model using the basic and mediating model in Figure 2. When the fit indices (Table 3) of *the 'Structural Model-1'* (Figure 3), which was created based on the hypotheses of the research (χ^2/df = 2.63, $p < .001$, CFI = 0.93, GFI = 0.93, RMSEA = 0.05 and SRMR = 0.05), it is understood that the model has a good fit.

Table 3
Measurement Model and SEM Path Analysis Values

Measure	Measurement Values	*Model 1 Path Values* ASE→CSR→LGO	*Model 2 Path Values* ASE→CSR→AGO	Cut-off Criteria
CMIN/DF	1.775	2.063	1704	<3
CFI	0.930	0.930	0.942	>0.90
SRMR	0.048	0.050	0.047	<0.08
RMSEA	0.044	0.051	0.042	<0.08
GFI	0.920	0.930	0.938	>0.90
AGFI	0.900	0.908	0.920	>0.90
IFI	0.931	0.931	0.943	>0.90
TLI	0.920	0.917	0.932	>0.90

Note. ASE: Academic self-efficacy; CSR: Control dimension of self-regulation; PGO: Proving goal orientation; AGO: Avoiding goal orientation; LGO: Learning goal orientation.

Figure 2
Basic and Mediating Model-1

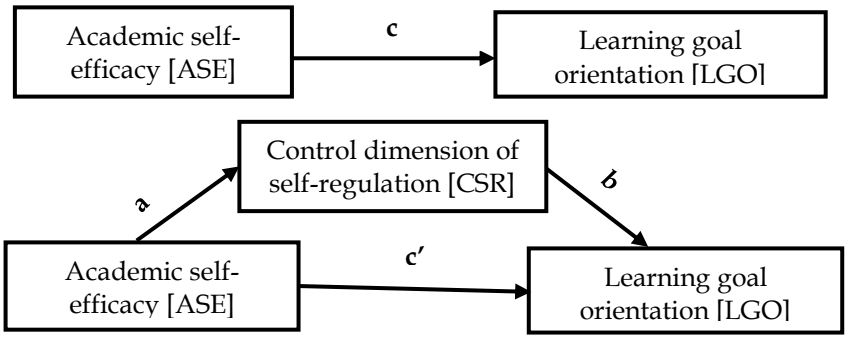
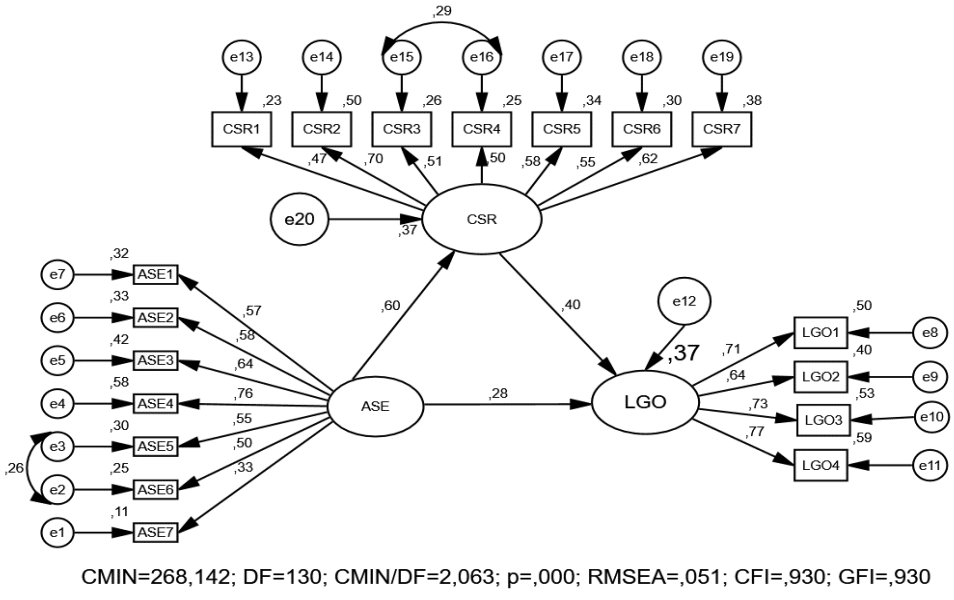


Figure 3
Structural Model-1



When the data presented in Table 4 are analyzed, the total effect of academic self-efficacy on learning goal orientation was statistically significant ($\beta = 0.516$, $p < .01$). In other words, when academic self-efficacy increases by one standard deviation, learning goal orientation increases by 0.516 standard deviations. This finding confirms hypothesis H1: Academic self-efficacy positively

Table 4
The Mediating Role of Attention Control of Self-regulation in the Effect of Academic Self-efficacy on Learning Goal Orientation SEM Analyses

				Bias-corrected 95% CI			
Model 1			St. Est.	Lower	Upper	SE	R^2
ASE	→ (c)	LGO (Total effect)	.516**	.405	.620	.054	.266
ASE	→ (a)	CSR	.605**	.502	.694	.050	.365
ASE	→ (c')	LGO	.281**	.114	.440	.082	
CSR	→ (b)	LGO	.397**	.238	.553	.081	.371
Indirect effect							
ASE → CSR → LGO			.240**	.148	.362	.053	

Note. **$p < .01$; ASE: Academic self-efficacy; LGO: Learning goal orientation; CSR: Control dimension of self-regulation. All model explained 37% of the variance in Learning Goal Orientation.

predicts learning goal orientation. A significant positive relationship was found between academic self-efficacy and attentional control of self-regulation (β = 0.605, $p < .01$), and the H2 research hypothesis that academic self-efficacy is a significant predictor of attentional control of self-regulation was confirmed. It was also determined that there was a significant positive relationship between the attention control dimension of self-regulation and learning goal orientation (β = 0.397, $p < .01$), thus confirming research hypothesis H3. The indirect effect between academic self-efficacy and learning goal orientation was found to be statistically significant since the indirect effect between academic self-efficacy and learning goal orientation was 0.240. The 95% confidence interval was between 0.148 and 0.362, and this interval did not include a zero (0) value. The standardized indirect (mediated) effect of academic self-efficacy on learning goal orientation is 0.240. This effect is in addition to any direct (unmediated) effect that academic self-efficacy may have on learning goal orientation. Based on this finding, research hypothesis H4 is confirmed. While academic self-efficacy alone explained 26% of learning goal orientation, it was determined that the explanation rate increased to 37% with the attention control dimension of self-regulation. In this context, it can be said that the attention control dimension of self-regulation has a partial mediating role. '*Structural Model 1*' explains 37% of the change in learning goal orientation (R^2= 0.37).

3.4. The Mediating Effect of the Attention Dimension of Self-Regulation in the Relationship between Academic Self-Efficacy and Performance Avoidance Goal Orientation

For the purpose of the research, path analysis was conducted to test the SEM model using the basic and mediating model in Figure 4.

Figure 4
Basic and Mediating Model-2

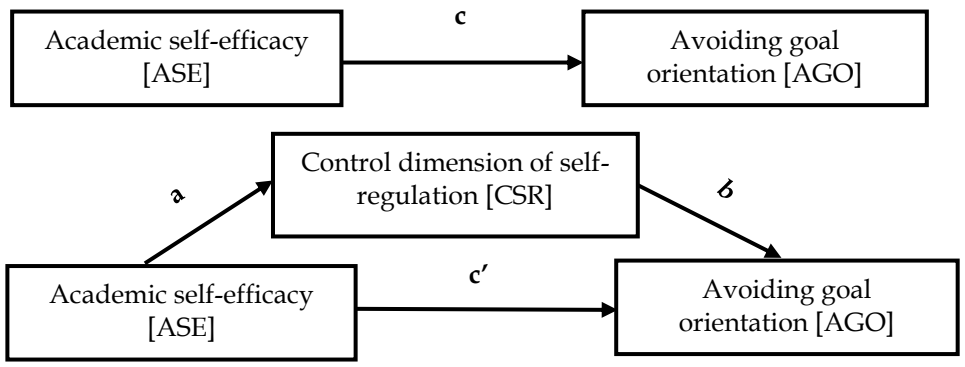
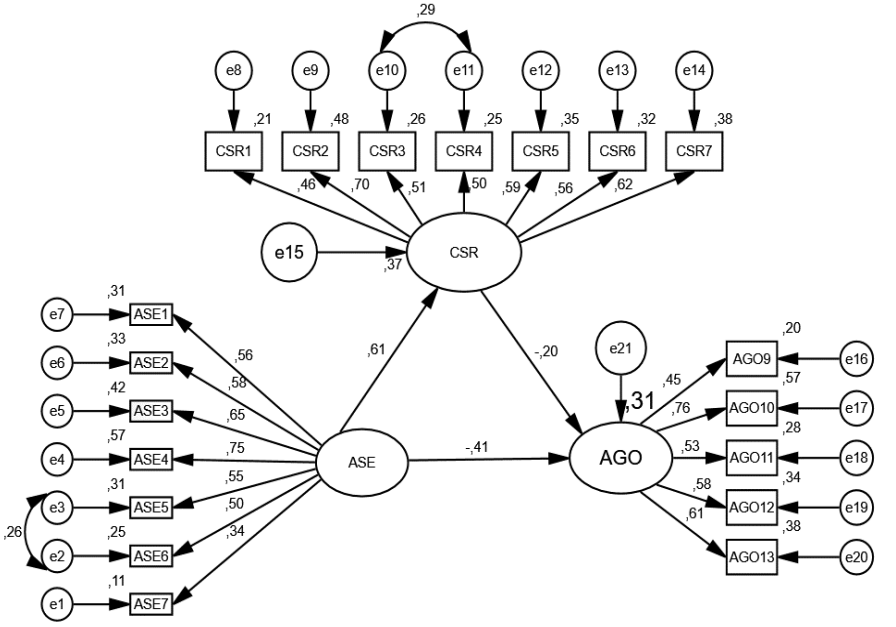


Figure 5
Structural Model-2



CMIN=250,524; DF=147; CMIN/DF=1,704; p=,000; RMSEA=,042; CFI=,942; GFI=,938

When the fit indices (Table 5) of the '*Structural Model 2*' (see Figure 5) created based on the hypotheses of the study are examined (χ^2/df = 1.70, p < .001, CFI = 0.94, GFI = 0.94, RMSEA = 0.04 and SRMR = 0.05), it is understood that the model has a good fit.

Table 5
The Mediating Role of Attention Control of Self-regulation in the Effect of Academic Self-efficacy on Performance-avoidance Goal Orientation SEM Analyses

				Bias-corrected 95%CI			
Model 2			St. Est.	Lower	Upper	SE	R^2
ASE → (c)	AGO	Total effect	−.532**	−.631	−.425	.053	.283
ASE → (a)	CSR		.606**	.503	.695	.049	.367
ASE → (c′)	AGO		−.411**	−.570	−.248	.081	
CSR → (b)	AGO		−.204*	−.369	−.032	.086	.312
Indirect effect							
ASE → CSR → LGO			−.124*	−.232	−.024	.053	

Note. *$p < .05$; **$p < .01$; ASE: Academic self-efficacy; AGO: Avoiding goal orientation; CSR: Control dimension of self-regulation. All model explained 31% of the variance in Learning Goal Orientation

When Table 5 is analyzed, the total effect of academic self-efficacy on performance-avoidance goal orientation was found to be negative and statistically significant (β = −0.532, $p < .01$). In other words, when academic self-efficacy increases by one standard deviation, performance-avoidance goal orientation decreases by 0.532 standard deviations. This finding confirms the research hypothesis H5 that academic self-efficacy negatively predicts performance-avoidance goal orientation. In addition, it was determined that attention control of self-regulation had a significant negative effect on performance-avoidance goal orientation (β = −0.204, $p < .05$). Thus, research hypothesis H6 was also confirmed. The indirect effect between academic self-efficacy and performance-avoidance goal orientation was found to be -0.124, and since the 95% confidence interval was between −0.232 and 0.024 and this interval did not include zero value, the indirect effect was found to be statistically significant. The standardized indirect (mediated) effect of academic self-efficacy on performance-avoidance is −0.124. This finding confirms the research hypothesis H7, which states that the attention control dimension of self-regulation has a significant

negative mediating role in the relationship between academic self-efficacy and performance-avoidance goal orientation. However, when R^2 values were analyzed, it was determined that while academic self-efficacy alone explained 28% of performance-avoidance goal orientation ($R^2 = 0.283$), the explanation rate increased to 31% with the attention control dimension of self-regulation. In this context, it can be said that self-regulation has a partial mediating role. '*Structural Model 2*', which was created based on the research hypotheses, explains 31% of the change in performance-avoidance goal orientation ($R^2 = 0.312$).

4. Discussion, Conclusion, and Suggestions

Based on the study's findings, it was concluded that there are significant relationships between academic self-efficacy and attention control dimension of self-regulation and learning goal orientation and performance-avoidance goal orientation dimensions of the academic goal orientation scale and that they affect each other. While a positive relationship was found between students' academic self-efficacy and attentional control of self-regulation and learning goal orientation, a negative relationship was found with performance-avoidance goal orientation. No significant relationship was found between the academic goal orientation scale's performance-proving dimension and academic self-efficacy and self-regulation.

In the '*Structural Model-1*' proposed based on the research hypotheses, firstly, the total effect of academic self-efficacy on learning goal orientation was examined, and it was determined that the effect found was significant and predicted learning goal orientation positively and significantly ($\beta = 0.516$, $p < .01$, $R^2 = 0.266$). It was concluded that as students' academic self-efficacy increased, their learning goal orientation also increased. In the study conducted by Elliot and McGregor (2001), it is seen that students with learning-oriented goals generally have higher academic achievement and stronger academic self-efficacy. Similarly, the literature shows that there is a positive correlation between students' academic self-efficacy and learning goals (Alhadabi & Karpinski, 2020; Hsieh et al., 2007; Kaya, 2017; Liu et al., 2023; Ma & Jin, 2023; Ndyareeba, 2024; Zhang, 2021; Zweig & Webster, 2004). These studies support the results of this research.

A significant positive relationship ($\beta = 0.605$, $p < .01$) was found between academic self-efficacy and attention control of self-regulation. It was determined that academic self-efficacy directly affected and positively predicted the attentional control dimension of self-regulation. Based on this finding, it was concluded that as students' academic self-efficacy increases, the attention control of self-regulation also increases. Self-regulation skills strengthen students' academic self-efficacy and contribute to their success (Schunk, 2003). Self-efficacy and self-regulation significantly affect students' learning strategies, motivation levels, and academic achievement (Adesola & Li, 2018). Different studies in the literature also support the existence of a relationship between self-regulation and self-efficacy (Bashir & Zaman, 2024; Bradley et al., 2017; Lee et al., 2020; Toharudin et al., 2019; Wang, 2023).

It was determined that there was a significant positive relationship between the attention control dimension of self-regulation and learning goal orientation ($\beta = 0.397$, $p < .01$), and it was determined that attention control of self-regulation affected and positively predicted learning goal orientation. It was concluded that increased attentional control of self-regulation also increases learning goal orientation. In the literature, studies are showing a positive relationship between self-regulation and learning goal orientation and supporting the results of this study (Al-Harthy et al., 2010; Azeem & Zubair, 2021; Hu, 2024; Kaplan & Maehr, 2006; Lin & Wang, 2018). As a result of the study conducted by Davoodi et al. (2017), it was determined that there was a significant relationship between goal orientation and self-regulation.

Based on the findings, it was concluded that the attentional control dimension of self-regulation had a significant partial mediating role in the relationship between academic self-efficacy and learning goal orientation. '*Structural Model-1*' explains 37% of the change in learning goal orientation ($R^2 = 0.37$). This research result can be interpreted as students' academic self-efficacy, which can improve the attentional control of self-regulation and, in turn, increase learning goal

orientation. The literature reveals the relationship between learning goal orientation and self-efficacy. Phillips and Gully (1997) found that ability, learning goal orientation, and locus of control were positively related to self-efficacy, while performance goal orientation was negatively related to self-efficacy in an academic task. Creed et al. (2013) found that learning goal orientation was directly and positively related to self-efficacy and outcome expectations after controlling for educational achievement. Jiang (2021) found that career self-efficacy positively mediated the relationship between learning goal orientation and career interest. Studies also show that self-efficacy mediates between learning goal orientation and related variables (Chen et al., 2023; Yuan & Chow, 2022; Zhang, 2021). However, there is no study on the mediating role of attention control of self-regulation in the relationship between academic self-efficacy and learning goal orientation.

In the '*Structural Model-2*' proposed based on the hypotheses of the study, firstly, the total effect of academic self-efficacy on performance-avoidance goal orientation was examined, and it was found that the effect was significant and negatively affected performance-avoidance goal orientation ($\beta = -0.532$, $p < .01$, $R^2 = 0.283$) and predicted it. It was concluded that performance-avoidance goal orientation decreased as students' academic self-efficacy increased. In this context, it can be said that as academic self-efficacy increases, students' avoidance of a task that requires academic effort will decrease. Research results in the literature also show that there is a negative correlation between self-efficacy and performance goal orientation (Hsieh et al., 2007; Kaya, 2017; Ndyareeba, 2024; Pulkka & Budlong, 2022; Shi, 2021; Zhang, 2021; Zweig & Webster, 2004). Performance-avoidance goals have a strong negative relationship with self-efficacy, possibly due to the psychological arousal associated with failure avoidance, which can reduce self-efficacy beliefs (Van de Walle et al., 2001).

The relationship between the attention control dimension of self-regulation and performance-avoidance goal orientation ($\beta = -0.204$, $p < .05$) was also found to be negative. It was concluded that increasing the attentional control dimension of self-regulation would decrease performance-avoidance goal orientation. In the results of previous studies, it was determined that there is a negative relationship between self-regulation and performance-avoidance goal orientation (Kaplan & Maehr, 2006; Lin & Wang, 2018). Individuals with performance-avoidance goal orientation focus more on avoiding negative outcomes instead of actively participating in learning tasks, and this perspective can lead to negative emotional and behavioral processes and prevent effective self-regulation. At the same time, this perspective may affect self-regulation by limiting adaptability and flexibility in learning behaviors (Creed et al., 2009).

The mediation analysis concluded that the attentional control dimension of self-regulation has a partial mediating role in the relationship between academic self-efficacy and performance-avoidance goal orientation. The '*Structural Model-2*' created based on the research hypotheses explains 31% of the change in performance-avoidance goal orientation ($R^2 = 0.312$). Based on this result, it can be said that students' academic self-efficacy can improve the attentional control of self-regulation, reducing performance-avoidance goal orientation.

In summary, the findings obtained from the path analysis show that students' academic self-efficacy and the attentional control dimension of self-regulation positively affect their learning goal orientations. In contrast, their performance-avoidance goal orientations are negatively affected. In addition, it was concluded that the attention control dimension of self-regulation partially mediates the relationship between academic self-efficacy and learning goal orientation and performance-avoidance goal orientation. However, the findings show that the attentional control dimension of self-regulation has a stronger mediating effect on the relationship between academic self-efficacy and learning goal orientation than the relationship between academic self-efficacy and performance-avoidance goal orientation.

The results of this study reveal the importance of academic self-efficacy and the attention control dimension of self-regulation in students' achievement of academic goals. Teachers and curriculum developers may be recommended to consider students' academic self-efficacy and attention control variables of self-regulation when setting academic goals or tasks. In addition,

activities and learning environments can also be organized to improve students' academic self-efficacy and attention control dimension of self-regulation to reduce students' performance-avoidance goal orientation. In order to collect more in-depth information about the study's variables, mixed research designs supported by qualitative data can be used. Research can be conducted on different sample groups with different variables that may affect academic goal orientation.

5. Limitations

This research is limited to quantitative data. It is limited to the data obtained from the Faculty of Humanities and Social Sciences students and determined by the convenience sampling method. A large proportion of the participants (71%) were students who perceived themselves as moderately successful. This situation can be considered a limitation due to the sample size.

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Data availability: The data supporting this study's findings are available upon request. Interested researchers may contact the corresponding author for access to the data.

Declaration of interest: The authors declare that no competing interests exist.

Ethical statement: All subjects who participated in the study gave their consent for both data collection and analysis. No additional ethical approval was needed.

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